Medical School Hotline

The University of Hawaii Telemedicine Project: A Web-based telemedicine curriculum for health care providers

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There are vast distances and geographic barriers to health care in the region of the world that is served by clinicians affiliated with the John A. Burns School of Medicine. This region, which includes over 30 million people[1] spread over an area larger than the continental United States, contains many rural and medically underserved communities with diverse medical problems.

Health care providers in rural areas are often trained in primary care, but in many areas lack immediate access to subspecialty and tertiary care that is necessary to treat the vast spectrum of pathology encountered. Factors that contribute to the shortage of health care providers in rural areas include geographic isolation and sparse populations, low reimbursement for medical services, high cost of living, limited educational opportunities for providers and their children, absence of interaction with the medical community and lack of access to current medical information. With modern technological capabilities and network infrastructure, telemedicine has emerged as a key tool in the primary care provider's black bag. With telemedicine, primary care providers and patients have access to expertise around the world. This medical tool requires training and specialized knowledge to operate successfully.

In keeping with its tradition of innovation, the John A. Burns School of Medicine is creating an on-line self-paced teaching curriculum for medical providers to learn the practice and principles of telemedicine. This curriculum is available to practitioners via the Internet, obviating the need to disrupt continuity of care to travel to a central site for training. The US federal government funds this effort, under the direction of the University of Hawaii Telemedicine Project[2] (UHTP). The UHTP, in developing content for the curriculum, is also engaged in facilitating telemedicine initiatives in the State of Hawaii and Pacific Rim. UHTP activities combined with other related funding activities have included the following: aging related research, hypoxia and high altitude research, telepsychiatry, teledermatology, teleradiology, bioterrorism surveillance, and international videoteleconferencing, Internet 2 applications, and simulation and virtual reality.

The primary deliverable of the UHTP, under the cooperative agreement with the Telemedicine and Advanced Technologies Research Center (TATRC), is the web-based curriculum. Currently, there are over 30 users, a mix of civilian and military physicians, graduate students, technologists, speech pathologists, and other allied health care clinicians. Many of these users are co-developers of the curriculum which highlights the cooperative effort of this concise, timely, and relevant curriculum.

There are six completed modules with four more under development. Each module is carefully reviewed for pertinence and accuracy of content, clarity of presentation, and ease of navigation. Modules are logically organized with focused learning objectives, quizzes, discussion boards, and extensive use of multimedia to simplify and demonstrate technical concepts.

Module one covers the fundamentals of telemedicine. This includes basic definitions, clinical applications, and implementation issues. Module two discusses the underlying technology and physical environment issues that are at play within telemedicine, and how to maximize them to best advantage. Module three provides step-by-step guidance on how to perform a telemedicine visit. Module four reviews organizational and management issues as they relate to the implementation of a telemedicine service. Module five provides three different clinical scenarios to get learners to think about different environments, technologies, and uses of telemedicine, module six uses audiology and balance assessment as a case study in telemedicine, to demonstrate many underlying principles brought up in previous modules.

Modules seven through ten are under development. These modules will extend the foundation of understanding principles of telemedicine, as put forth in modules one through six. Module seven will discuss in depth the different modalities available for telemedicine. Module eight will focus on use of telemedicine in emergency situations encountered by first responders. Module nine will describe the uses of simulation and virtual reality, and how these are being used in medical training. Module ten is for patient education aimed at providing a tool kit for providers to educate patients undergoing telemedicine encounters. The role of outpatient monitoring and its role in patient education and disease management will also be discussed.

With the curriculum nearing completion, providers in military and civilian sectors will have access to an educational experience that will open up their access to medical expertise around the world through telemedicine. This curriculum has the potential to facilitate better care for specific clinical problems in both urban and rural settings, as well as deliver care to rural-remote areas with real shortages in health care. The curriculum will be available for use for just-in-time training, integration into a larger program on technology in medicine, or as a stand-alone resource.

To learn more about the UH Telemedicine Project and review the curriculum, visit the website at www.uhtelemed.hawaii.edu.

References

1. "Population and Development Indicators for Asia and the Pacific, 1999"; http://www.unescap.org/pop/data_sheet/1999_tab1.htm; Last updated 1/20/00; Accessed 5/1/03
2. Burgess, L; "University of Hawaii Telemedicine Project": Grant # - DAMD 17-99-2-9003 Modification P00006 from Dept. of the Army. Approved for 1 Aug 02 – 31 July 03.